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ABSTRACT

In 1992 the University of South Alabama instituted a doctoral program in Instructional Design and Development. A survey was designed to help assess entry competencies of incoming students, monitor student development through the educational program, and assess program effectiveness. Students were also asked to choose 10 competencies that they believed were worth developing. Sixty-seven surveys were returned by master's and doctoral students in the fall of 1992 and 1993. Results indicated that incoming students rate themselves most highly in general management skills, while faculty rate them most highly in oral communication skills. Overall, the faculty rates students lower than the students rate themselves. To the 16 competencies identified in a review of the literature, students most often added the need for competencies in multimedia and computer-based instruction. The faculty members do not have a clear consensus of the top competencies students should acquire. Continued evaluations as the new program matures should define needed competencies more clearly. Three tables present study findings, and the survey instrument is attached. (Contains 6 references.) (SLD)

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INSTRUCTIONAL DESIGN AND DEVELOPMENT COMPRTENCIES IN A NEW ACADEMIC PROGRAM

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Instructional Design and Development Competencies in a New Academic Program

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Introduction

In the early 1980s, competencies needed by instructional designers were proposed by AECT, the International Board of Standards for Training Performance and Instruction (IBSTPI), and various instructional design professionals (e.g., Bratton, et. al., 19810, Deden, Parker, 1981, Wallington, 1981, Redfield & Dick, 1984, IBSTPI, 1986). These competencies ranged from determining projects suitable for an instructional solution to summative evaluation of a project. They have naturally been used as development guidelines of formal programs for study in instructional design (Silber, 1984).

The implementation of a new program provides unique opportunities to evaluate and monitor student development. In September, 1992, the University of South Alabama (USA) initiated a doctoral program in Instructional Design and Development (ID&D). Building upon an in-place Masters of Science program, the doctoral program was developed to expand and enhance instructional design research and practice.

To help assess entry competencies of incoming students, monitor student development through the educational program, and assess program effectiveness, a survey (see Appendix A) was designed. In part, the survey permits students an opportunity to self-assess their instructional design and development competencies. Students were also asked to choose ten competencies which they believed were most important for them to develop. These data form a benchmark and initial database for a continuing study.

This discussion reports the nature and program implications of benchmark data based on student responses. A related faculty survey was conducted to explore faculty views of beginning student competence and the top competencies they expect students to acquire. Results from the two surveys were compared to interpret perceptions of both groups.

Major questions we attempted to answer in these preliminary surveys were:

1. In what competency areas do incoming ID&D students consider themselves strong and which do they consider themselves weak? How do these compare to faculty perceptions.
2. How do the competencies that ID&D students consider to be most important to develop compare to those reported to be most important in our professional literature.
3. How do master students self-reported competencies differ from those of doctoral students.
4. Which competencies do faculty consider to be most important for student development and how do these compare to those reported in the literature.

Method

In September, 1992, the USA implemented a doctoral program in ID&D. Twenty-two students were admitted. A Masters program had been in place for several years, with 54 active students in Fall, 1992. An additional 14 doctoral students were admitted to the program in 1993. Thirty-two additional masters students were admitted between January and September 1993. All students were sent a survey upon admittance. Follow-up surveys were sent to those who did not respond within one month.

During the summer of 1993, all USA ID&D faculty were distributed two surveys: one for doctoral students and one for masters students. They were instructed to assess competencies of the typical incoming student and select the top ten competencies graduating students would need to

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develop.

Results

One hundred and fourteen surveys were distributed to masters and doctoral student in Fall Quarters of 1992 and 1993. Sixty-seven were returned. These data were analyzed to determine students' current skill levels. Table 1 describes the top perceived student competencies students and faculty assessment of those competencies.

Table 1
Top 10 Student (Ph.D. and M.S.) Self-Reported Competencies Compared to Faculty Perception of Those Competencies

Competency	Student Self-Reported Mean (n) (1:6)	Faculty Assessment Mean (n=5) (1:6)
Ph.D		
demonstrate general management skill (Q36)	4.97 (36)	2.70
communicate effectively in writing (Q29)	4.08 (36)	3.30
deliver presentations (Q47)	4.00 (36)	3.10
develop and sustain professional relationships (Q43)	3.94 (36)	3.10
communicate effectively orally (Q28)	3.83 (36)	3.70
participate in professional organizations (Q44)	3.78 (36)	2.77
demonstrate appropriate interpersonal and group process behaviors (Q30)	3.67 (36)	3.50
communicate visually (Q27)	3.61 (36)	3.10
manage the work of work of others (Q13)	3.60 (35)	2.90
write or edit copy of instructional materials (Q07)	3.28 (36)	3.30
M.S.		
communicate effectively in writing (Q29)	3.92 (26)	2.50
develop and sustain professional relationships (Q43)	3.69 (26)	2.30
communicate visually (Q27)	3.54 (26)	2.10
communicate effectively orally (Q28)	3.50 (26)	3.10
deliver presentations (Q47)	3.44 (27)	1.90
demonstrate general management skill (Q36)	3.40 (25)	1.20
demonstrate appropriate interpersonal and group behaviors (Q30)	3.38 (26)	3.10
negotiate with small groups for particular purposes (Q49)	3.12 (26)	1.88
write or edit copy of instructional material (Q07)	2.89 (27)	1.50
analyze instructional objectives into subordinate skills (Q04)	2.81 (26)	.80

As a whole, master's students and doctoral students have completed similar numbers of instructional design courses. Fifty percent of doctoral students, however, had no instructional design courses. Only 24% of masters students had not had taken any courses. This difference can be explained by the newness of the doctoral program; all doctoral students were new to the

program. Because the masters program was a continuing one, survey respondents would naturally have had more courses than new, in-coming students.

The role of ID&D or instructional technology programs is often perceived as that of training graduate students in basic standard competencies (Silber, 1984). Some of the most common of these competencies are listed in Table 2. The last two columns rank-orders top competencies that USA ID&D students and faculty felt were important to develop.

The 16 competencies proposed as a result of the extensive IBSTPI efforts are considered by some practioners to be the standard for the field. Table 3 contains student self-assessment and faculty assessment of student skills in each of these competencies. Student assessment is individual self-assessment at the time of survey. Faculty assessment is based on perceptions of incoming student skill levels.

The combined competency rating of all students (M.S. and Ph.D.) was 2.55. Doctoral students had a slightly higher competency mean than masters students (2.80:2.28). Masters students had a slightly higher mean in the number of ID&D courses taken (3.24:2.93). Doctoral students appear to be more confident in the individual skills making up the instructional design process.

Discussion

The results of the survey provide preliminary answers to our stated questions. Future investigation will shed additional light on these results. As students begin to graduate from the program, examination of the change in competency levels will help evaluate the effectiveness of the graduate program and the quality of graduates.

1. *In what competency areas do incoming ID&D students consider themselves strong and which do they consider themselves weak? How do these compare to faculty perceptions.*

Incoming students rate themselves most highly in demonstrating general management skills (Q36). Faculty rate new students most highly in the ability to communicate orally (Q28). Faculty, overall, rate students lower than students assess themselves. One explanation for this disparity may be that because students have little experience in the ID&D field, they have a less sophisticated comprehension of what the competencies mean. Also, faculty may see each competency as an integral part of a whole and the subsequent educational experience as developing overall ID&D skills.

2. *How do the competencies that ID&D students consider to be most important to develop compare to those reported to be most important in our professional literature.*

The most marked competency addition by USA ID&D students concerned multi-media and CBI development. The three major groups of competencies do not mention use of technology as a skill. USA's students are required to complete specific technology-based objectives and courses. This requirement may have influenced the student's perceptions of important skills to develop.

Students also included application of research and learning theory (echoing faculty perceptions). This is also an integral part of USA's program. Students are grounded in the theory behind the practice. Practical aspects of the other three lists do not explicitly address theoretical basis of instructional design.

As students begin to graduate from the program, comparison of what they believed to be important when they began the program will be compared to current perceptions. As they learn more about instructional design and its processes, their conceptions of important competencies may change to reflect closer matchings with industry standards.

Table 2
Comparisons of Competencies: Industry and USA ID&D Students and Faculty

AECT-DID, 1981 (Bratton, et. al.) (no order of importance implied)	Deden-Parker, 1981 (mean responses, rank ordered)	IBSTPI, 1986 (order in which competencies are commonly used)	USA ID&D Students (order of decreasing N)	USA Faculty (order of decreasing N)
determine projects appropriate for ID	interpersonal communication	determine projects appropriate for instructional design	plan instructional development projects (Q38, n=14)	use knowledge of learning theory (Q01, n=9)
assess learner/trainee characteristics	work with a minimum of supervision	conduct a needs assessment	conduct needs assessments (Q16, n=13)	communicate effectively in writing (Q29, n=7)
analyze structural characteristics of jobs, tasks, content	work under pressure or overtime	analyze setting characteristics	design and plan for large-scale instructional systems (Q56, n=13)	conduct research related to ISD (Q14, n=6)
write statements of learner outcomes	analysis, planning, and development of fairly complex training programs	perform job, task, and/or content analysis	develop evaluation instruments (Q62, n=11)	specify instructional strategies (Q22, n=6)
analyze characteristics of a setting (learner environment)	work in a team	write statements of performance objectives	systematically design & develop CBI (Q50, n=10)	develop tests for assessing learning outcomes (Q10, n=4)
sequence learner outcomes	testing, questionnaire design, and evaluation skills	develop performance measures	conduct formative evaluation and use the data for program revision (Q11, n=10)	conduct formative evaluation and use the data for program revision (Q11, n=4)
specify instructional strategies	writing procedures manuals and creating job aids	sequence performance objectives	discuss and apply research and learning theory (Q35, n=10)	assess learner/trainer characteristics (Q17, n=4)
determine instructional resources (media) appropriate to instructional activities	media production	design instructional materials	communicate effectively in writing (Q29, n=9)	demonstrate appropriate interpersonal and group process behaviors (Q30, n=4)
evaluate instruction/training	budget development or consultation	evaluation instruction/training	use knowledge of learning theory (Q01, n=9)	discuss and apply research and learning theory (Q35, n=4)
create course, training package, and workshop management systems	work at remote sites (travel)	design the instructional management system	create course, training package, and workshop management (Q26, n=9)	write or edit copy of instructional materials (Q07, n=3)
plan and monitor instructional development projects	teaching	plan and monitor instructional design projects	prepare proposals and reports (Q45, n=9)	communicate effectively orally (Q28, n=3)
communicate effectively in visual, oral, and written form	writing self-study workbooks	communicate effectively in visual, oral, and written form	communicate effectively orally (Q28, n=9)	systematically design and develop computer-based instruction (Q50, n=3)
demonstrate appropriate interpersonal, group process, and consulting behaviors	editing written work	interact effectively with other people	conduct research related to ISD (Q14, n=8)	discuss the implications of current and future trends and issues in ISD (Q55, n=3)

Table 3
Student Self-Assessment of Instructional Design Competencies (scale 1:6)

International Board of Standards for Training Performance and Instruction (USA Competency)	Student Self-Report Aggregate Mean (n)	Faculty Assessment Aggregate Mean (n)	Ph.D. Mean (n)	Faculty Assessment of Ph.D. Mean (n)	M.S. Mean (n)	Faculty Assessment of M.S. Mean (n)
determine projects appropriate for instructional design (q15)	2.16 (62)	1.80 (10)	2.19 (36)	2.50 (5)	2.12 (26)	1.10 (5)
conduct a needs assessment (q16)	2.11 (62)	1.35 (10)	2.28 (36)	1.90 (5)	1.88 (26)	.80 (5)
assess relevant learner/trainee characteristics (q17)	2.42 (62)	2.00 (10)	2.53 (36)	2.50 (5)	2.27 (26)	1.50 (5)
analyze setting characteristics (q20)	2.60 (62)	2.20 (10)	2.72 (36)	2.90 (5)	2.42 (26)	1.50 (5)
perform job, task, and/or content analysis (q03)	2.97 (62)	1.80 (10)	3.14 (36)	2.50 (5)	2.73 (26)	1.10 (5)
write statements of performance objectives (q19)	2.66 (62)	2.05 (10)	2.78 (36)	2.90 (5)	2.50 (26)	1.20 (5)
develop performance measures (q10)	2.58 (62)	1.15 (10)	2.77 (35)	1.50 (5)	2.33 (27)	.80 (5)
sequence performance objectives (q21)	2.52 (60)	1.90 (10)	2.65 (34)	2.70 (5)	2.35 (26)	1.10 (5)
specify instructional strategies (q22)	2.29 (62)	1.85 (10)	2.44 (36)	2.30 (5)	2.08 (26)	1.40 (5)
design instructional materials (q07)	3.11 (63)	2.40 (10)	3.28 (36)	3.30 (5)	2.89 (27)	1.50 (5)
evaluate instruction/training (q62)	2.06 (63)	1.00 (8)	2.14 (36)	1.50 (4)	1.96 (27)	.50 (4)
design the instructional management system (q12)	1.95 (63)	1.00 (10)	2.44 (36)	1.60 (5)	1.30 (27)	.40 (5)
plan and monitor instructional design projects (q56)	1.48 (63)	.75 (8)	1.47 (36)	1.25 (4)	1.48 (27)	.25 (4)
communicate effectively in visual, oral, and written form (q27, q28, q29)	3.58 (62) 3.69 (62) 4.02 (62)	2.60 (10) 3.40 (10) 2.90 (10)	3.16 (36) 3.83 (36) 4.08 (36)	3.10 (5) 3.70 (5) 3.30 (5)	3.54 (26) 3.50 (26) 3.92 (26)	2.10 (5) 3.10 (5) 2.50 (5)
interact effectively with other people (q30)	3.55 (62)	3.30 (10)	3.67 (36)	3.50 (5)	3.38 (26)	3.10 (5)
promote use of instructional design (q32)	2.26 (62)	1.25 (10)	2.50 (36)	1.50 (5)	1.92 (26)	1.00 (5)

3. *In what ways do master students self-reported competencies differ from those of doctoral students.*

In all reported cases, doctoral students reported higher mean competencies than masters students. This may be attributed to doctoral students having completed masters degrees which increased confidences in their own skill attainment.

4. *Which competencies do faculty consider to be most important for student development and how do these compare to those reported in the literature.*

USA faculty do not show a clear consensus of the top competencies students should have (see Table 2). While most agree that learning theory is important (n=9) and students should communicate effectively in writing (n=7), agreement in other areas are not as cohesive. Thirty-nine out of 62 competencies were chosen by a least one faculty member as being part of their "Top-10 List." Faculty-selected competencies, like those selected by students, contain strong theoretical basics.

Conclusion

Professions have basic skills and components that make them professions. Training new practioners in these skills ensure that the profession maintains its standards. Knowledge and application of those components help ensure consistency throughout the profession.

New instructional design programs depend on published and perceived competencies. As the program at USA matures, further evaluation of student development will be conducted. These continued evaluations will be used to enhance USA's program to ensure that students acquire the competencies they need to succeed as instructional designers. Further review of the competencies and enhancement, if necessary, will assure continued sucess of instructional designers.

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Instructions

- Rate your present skill level for each competency.
- Identify the the ***ten*** skills which you believe that are most important for you to develop (*circle* the competency number).

Competency	Current Skill Level											
	None	Beginning			Intermediate			Advanced				
1. Use knowledge of learning theory	0	1	2		3	4		5	6			
2. Use or interpret data dealing with needs or requirements	0	1	2		3	4		5	6			
3. Prepare job descriptions or task descriptions	0	1	2		3	4		5	6			
4. Analyze instructional objectives into subordinate skills	0	1	2		3	4		5	6			
5. Use or teach people to use, objectives which are ambiguously described	0	1	2		3	4		5	6			
6. Develop or specify selection and use of media for instruction	0	1	2		3	4		5	6			
7. Write or edit copy of instructional materials	0	1	2		3	4		5	6			
8. Design and develop instructional delivery procedures	0	1	2		3	4		5	6			
9. Develop training workshops	0	1	2		3	4		5	6			
10. Develop tests for assessing learning outcomes	0	1	2		3	4		5	6			
11. Conduct formative evaluation and use the data for program revision	0	1	2		3	4		5	6			
12. Manage grants, contracts, or other funded projects	0	1	2		3	4		5	6			
13. Manage the work of others	0	1	2		3	4		5	6			
14. Conduct research related to ISD	0	1	2		3	4		5	6			
15. Determine projects appropriate for instructional development	0	1	2		3	4		5	6			
16. Conduct needs assessments	0	1	2		3	4		5	6			
17. Assess learner/trainer characteristics	0	1	2		3	4		5	6			
18. Analyze the structural characteristics of jobs & tasks	0	1	2		3	4		5	6			
19. Write statements of learner outcomes	0	1	2		3	4		5	6			
20. Analyze the characteristics of a learning environment	0	1	2		3	4		5	6			
21. Sequence learner outcomes	0	1	2		3	4		5	6			
22. Specify instructional strategies	0	1	2		3	4		5	6			
23. Sequence learner activities	0	1	2		3	4		5	6			
24. Conduct instructional analyses	0	1	2		3	4		5	6			
25. Determine appropriate instructional media	0	1	2		3	4		5	6			

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26. Create course, training package, and workshop management systems	0	1	2	3	4	5	6
27. Communicate visually	0	1	2	3	4	5	6
28. Communicate effectively orally	0	1	2	3	4	5	6
29. Communicate effectively in writing	0	1	2	3	4	5	6
30. Demonstrate appropriate interpersonal and group process behaviors	0	1	2	3	4	5	6
31. Demonstrate consulting ability	0	1	2	3	4	5	6
32. Promote the diffusion and adoption of instructional materials or projects	0	1	2	3	4	5	6
33. Create specifications for instructional activities	0	1	2	3	4	5	6
34. Incorporate extant materials into a systematically-designed module	0	1	2	3	4	5	6
35. Discuss and apply research and learning theory	0	1	2	3	4	5	6
36. Demonstrate general management skill	0	1	2	3	4	5	6
37. Conduct quality control/assurance	0	1	2	3	4	5	6
38. Plan instructional development projects	0	1	2	3	4	5	6
39. Systematically design & develop IVD instruction	0	1	2	3	4	5	6
40. Systematically design & develop print-based instruction	0	1	2	3	4	5	6
41. Systematically design & develop multi-media for instructional purposes	0	1	2	3	4	5	6
42. Analyze learner's reading level	0	1	2	3	4	5	6
43. Develop & sustain professional relationships	0	1	2	3	4	5	6
44. Participate in professional organizations	0	1	2	3	4	5	6
45. Prepare proposals & reports	0	1	2	3	4	5	6
46. Analyze the attributes of various media	0	1	2	3	4	5	6
47. Deliver presentations	0	1	2	3	4	5	6
48. Write articles on instructional development topics	0	1	2	3	4	5	6
49. Negotiate with small groups for particular purposes	0	1	2	3	4	5	6
50. Systematically design & develop computer-based instruction	0	1	2	3	4	5	6
51. Conduct interviews with subject-matter experts	0	1	2	3	4	5	6
52. Review research literature to support instructional programs or strategies	0	1	2	3	4	5	6

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53. Prepare budgets & timelines for instructional systems	0	1	2	3	4	5	6
54. Summarize the history of well-known programs related to instructional development	0	1	2	3	4	5	6
55. Discuss the implications of current & future trends & issues in ISD	0	1	2	3	4	5	6
56. Design and plan for large-scale instructional systems	0	1	2	3	4	5	6
57. Assess future training needs	0	1	2	3	4	5	6
58. Monitor ISD projects	0	1	2	3	4	5	6
59. Develop video training programs	0	1	2	3	4	5	6
60. Develop audio materials	0	1	2	3	4	5	6
61. Manage media production facility	0	1	2	3	4	5	6
62. Develop evaluation instruments	0	1	2	3	4	5	6

63. **Please list below any other competencies that you think are important to a professional in the field of Instructional Design and Development.** (Use the back of this sheet if necessary.)

64. **Please list below the ID&D related courses that you have taken.** (Use the back of this sheet if necessary.)

Thank you for your cooperation.

Name **Date**

PHD student ☐

Student No. **MS Student** ☐

(check one)

All information will be be confidential and will be used for research and program improvement purposes only.

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